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Electrification Section

1954



U. S. DEPARTMENT OF AGRICULTURE

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A Message from the

ADMINISTRATOR

A new trend is evolving in the electric power industry, according to an article in a recent issue of a national magazine. This is a trend toward integration between investor-owned and government-financed power systems. According to this article this promises to be unique in the history of private and public power activities.

The article was written by Albert Lepawsky of the University of California, who has followed power developments for years.

His statement is of special interest to me. In recent months, I have come to believe that many of our nagging, time-consuming problems of power cost can be solved locally through cooperation and through inter-connection or integration of facilities by our borrowers and other power suppliers including electric companies, municipalities or government hydro projects.

For example, in Kentucky some months ago, a group of rural electric cooperatives and Kentucky power companies settled their long-standing difficulties by adopting a plan that involved integration and inter-connection of the co-op, the company and TVA. Both groups will be able to cut down on plant investments which cost money and both will benefit from lower power costs and better service.

This, of course, is just one case. There are others in Iowa, Minnesota, and elsewhere. And more are bound to come as the economic advantages become more evident to the farmers concerned.

For my part in administering loans of huge sums of money and for your part in accepting them, we owe it to all of the people to see to it that we get the most good from those dollars. To do this, we must investigate and consider all avenues open for getting more power to our farms at the lowest cost consistent with good, dependable service.

Administrator.

*Cedar Rapids Plan**Iowa Borrower's Integration
Program Reduces Power Costs**By I. E. Trotnow, Manager**Central Iowa Power Cooperative, Cedar Rapids, Iowa*

I suppose few rural electric power agreements have attracted more interest among the Nation's co-ops and farm people than that of our Central Iowa Power Cooperative—CIPCO, we call it.

You see we're in sort of a class by ourselves so far as rural electrification goes. We were set up as a G & T cooperative, but instead of running our own power generating plant and tackling all of the problems that go with it, we turned the job over to Iowa Electric Light and Power Co. of Cedar Rapids.

Folks keep asking us to tell how this cooperative arrangement with the power people is working out. After four years' experience with the program, I am glad to say that it has proved most satisfactory and successful. As we see it, this success is due chiefly to the good teamwork and friendly relationship existing between CIPCO's 8 member co-ops and officials of the power company. If there's a secret to it at all, it's that everyone in our integrated power set-up is getting along well together.

Power Shortage Required Action. People hereabouts agree that it was a good thing for our member co-ops and their 30,000 rural consumers that REA lent us the money

to construct our G & T system. The situation was this. When war-time industries closed down most of us figured there would be more power available. But it panned out there was substantially less power.

The company which supplied most of the power for our electric co-ops was hard pressed to meet the ever-increasing load demand. In one 3-week period during the winter of 1949-1950, the company had every piece of generating equipment running at load peaks with no reserve power left. No wonder all of us kept our fingers crossed. We faced the problem of either getting our wholesale power from other sources, or going without electricity entirely. It wasn't a rosy picture.

CIPCO Organized to Meet Need.

We believe we took a major step forward when we organized the 8 co-ops in our area into the Central Iowa Power Cooperative and geared ourselves to the policy of providing adequate power at the lowest possible cost consistent with sound business management.

When we speak of CIPCO we, of course, mean its member co-ops: Benton County Electric Cooperative Association, Buchanan County Rural Electric Cooperative, Green County

Rural Electric Cooperative, Linn Rural Electric Cooperative Association, Guthrie Rural Electric Cooperative, Maquoketa Valley Rural Electric Cooperative, Marshall Rural Electric Cooperative and T. I. P. Rural Electric Cooperative. Together they supply consumers in some 25 Iowa counties.

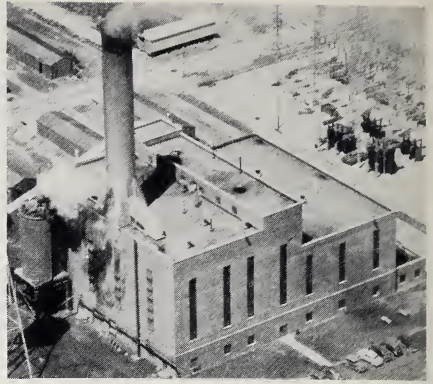
Under CIPCO we signed an agreement with the power company and obtained loans totalling some \$10 million in REA funds to construct our present 44,000-kw generating plant and transmission lines.

Provisions of Agreement. Here are main terms of the agreement:

1. Power company to operate and maintain CIPCO's generating plant, and transmission lines.
2. CIPCO to use company's transmission facilities.
3. CIPCO's transmission lines to be connected to the power company's lines.
4. Power company has use of surplus generating capacity above the member co-ops' generating needs.
5. In exchange for this benefit the company will provide a certain amount of power to CIPCO for a 2-year period at a time when member co-ops need additional capacity.
6. Power company may use CIPCO's transmission facilities.
7. CIPCO is provided with necessary firming generating capacity, thus saving us approximately one-third the investment if we operated independently.

The following stipulations are written into the contract for the protection of CIPCO and the power company:

1. Power company cannot terminate contract before 35 years.
2. CIPCO can terminate contract on 2 years' notice.



This is the steam generating plant owned by CIPCO, operated by Iowa Electric Light and Power Co.

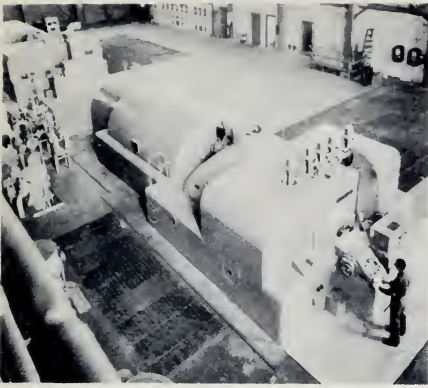
3. Even if CIPCO does terminate the contract before 35 years, the power company is required at request of CIPCO to transmit power from the plant to the member co-op's transmission lines.
4. Contract also calls for continued interchange of power by CIPCO and power company.

Four Years' Experience Is Good.

Our first steam turbo-generating plant unit was energized in June, 1950, and the second unit went on the line in August the following year.

It's been 4 years since the power company began operating our plant and we feel we can make these observations:

1. Use of the power company's transmission lines has been a big money saver for CIPCO. It would cost us several million dollars to lay out the 450 miles of additional transmission line we would need.
2. Our plant is operated at base load with a load factor of 75 to 80%.
3. We have been generating power with about 12,000 BTU per kwh which means the fuel cost is low for our type of plant.



These two steam turbo-generators provide 44,000 kw for CIPCO's member co-ops.

4. We expect to have adequate power for next 5 years or so.
5. One of our policies is "Pay as you go." We are collecting from member co-ops the full fixed charges now rather than defer them until the usage increases. Our rates are now the highest that they will be. But as usage steps up, the rate will drop.
6. CIPCO's 8 member co-ops have first call on power up to the 44,000-kw capacity of the REA-financed plant. This is a talking-point because our co-ops used to be limited in power. Today they can use as much as they need.

The power company will furnish us 10,000 more kw after we hit the 44,000 kw capacity mark. There is no charge for the first 5000 kw which is in payment for the company's use of the co-op's surplus generating capacity.

Harmony Is Keynote. Recently our CIPCO board president, Frank Frederick of Marion, summed up his views on the integrated power system in this way:

"We're just plain lucky to have things the way they are. All of us

in CIPCO are glad to have had the opportunity to join with the power company in providing dependable, adequate electric service to the rural people of our area.

"We can say that the fine cooperation existing between our co-op members and the company is certainly an important reason for the good power rate we can give borrowers."

And not long ago, Ed Beach, manager of Maquoketa Valley, a member co-op of CIPCO, had this to say about the plan:

"Our co-op was buying power from three sources before CIPCO, and rates were pretty high. In 1947, for example, our average rate was 13.8 mills, would have been even higher if we didn't have a power contract. In 1953, the first full year that all of our load was under CIPCO, we saved around \$70,000 in power wholesale costs. Our power rate dropped to 10.49 mills. We use about a quarter of the CIPCO load.

"Also because of CIPCO's transmission lines and sub-station, we've been able to maintain better voltage regulation. This helped us reduce distribution losses to 11½% last year. Our losses used to run about 15%."

Company Cites Low Costs. Herbert Henderson, vice-president of Iowa Electric Light and Power Co., with whom our CIPCO board deals frequently, explains the company's viewpoint:

"Integration of CIPCO co-ops with our company makes it possible for us to operate at a high load factor, resulting in the lowest possible generating costs.

"Also public relations-wise we feel that we have the goodwill of all the farm co-ops in our area. I think this friendly working relationship is a significant reason why the joint program is succeeding."

Microfilming Records

**By John M. Jones, Office Manager, Duck River
Electric Membership Corporation, Shelbyville, Tenn.**

I am no specialist in microfilming. In fact my experience is limited to our use of the Tennessee statewide association's machine. This is what we learned about the use of microfilm for permanent records.

As far as the microfilm machine is concerned it is complete in itself. But it was necessary for our co-op to purchase (or otherwise have available) a film viewer. There are several of these viewers on the market which cost from \$250 to \$1,000. We found one which cost around \$650 to serve our purpose and it is satisfactory.

After making arrangements with the State Association for use of the equipment we picked up the machine from the co-op that last used it. We were charged \$5.00 a day minimum for use but were credited for the amount of film which we purchased from the State Association at \$7.00 per roll. The profit, if any, on the film goes to pay for the maintenance of the machine and its amortization.

Film Requirements. The average cooperative probably will require less than one case of 24 rolls of film for its initial filming. The total cost then at \$7.00 per roll would be \$168.00. After its initial use less time and film would be required. In Tennessee the microfilming equipment is available to us about every 24 months.

Now that we have talked about getting the equipment, and the approximate cost to us, let's talk about the actual operation of the equipment,

and the preparation of our records for microfilming.

There is not much that I can tell you about the machine. It looks complicated but it is actually simple to operate. It comes with an automatic feed and is equipped with a double document stop. That is, it will feed only one document at a time, and if two go through the feeder it will automatically stop.

Manual Helps. It will be helpful for you to read the manual of instructions with the machine before trying to use it. Also, the Federal Power Commission has issued a manual of regulations and guide on the Preservation of Records of Public Utilities. This manual may be obtained from the Superintendent of Documents for 15 cents. The latest edition of this manual was issued in 1951. REA has issued a manual for Preservation of Borrower's Records (Bulletin No. 180-2) which may be obtained from REA upon request.

These two guides are the only authentic sources of obtaining information concerning preservation of records and microfilming records, I know of. They both should be read and studied thoroughly.

After these two manuals have been read you should compile a list of material and records which you propose to microfilm. I would suggest that you then present this list to your Manager for his study and approval before the microfilming is begun.

What Records to Film? The question now is what records may you film. The answer in most cases will be found in REA's Bulletin No. 180-2. Good business practice requires that the original of certain important documents and records be retained permanently. Minute books, corporate charter, general ledgers, cash and journal vouchers, and cash books are examples of records which should be maintained permanently.

But many detailed records which are in volume and of course which require the most storage space may be microfilmed and destroyed as soon as they are no longer current. However, records of a period should not be destroyed until after the annual audit. These records would consist of paid checks, bank statements, general correspondence, meter reading sheets, etc., meter reading cards, meter orders, adjustments and allowance vouchers, and purchase orders.

Cash receipts vouchers and bill stubs would fall in this group also. However, I would not recommend the microfilming of these records as they pass the current stage quickly. We maintain these records in a card file for 12 months only, and then destroy the bill stubs after that time. We have, to date, kept all of our members' accounts-receivable ledgers.

Preparing Records for Filming. The problem which probably disturbs most of us is the arrangement of our records before the microfilming begins. I'll admit I didn't know where to start. But actually this is no problem at all. The secret of the whole operation is good indexing. If you are careful and properly index your film, there is no need to spend a lot of time on sorting and arranging your records beforehand.

It makes no difference if you run 100 purchase orders, then 100 checks, etc. as long as you correctly index



Mr. Jones has been Chief Accountant and Office Manager of the Duck River EMC since November 1948. Before that he was Office Manager of the Middle Tennessee EMC, Murfreesboro. He is a graduate of the University of Mississippi, with a Bachelor of Science degree in Accounting and Auditing.

your film. In the end you will prepare a master index on all material and records microfilmed. If you have to refer to a certain check number or purchase order, it makes no difference which roll of film it is on.

Of course, it would be nice to have all like records together and microfilm the same records on the roll of film, but it is not necessary.

Certify Original Records. Both the FPC and REA manuals suggest that a certificate be photographed at the beginning and end of each roll of film to certify that the material photographed is the original record.

I would suggest that the material photographed not be destroyed until after the film has been developed and proofread, as some of the material may have to be retaken.

Pencil copy will photograph just as satisfactorily as ink or printed matter.

We are highly pleased with our results and do not hesitate in recommending the use of this service.

Any idea where America's oldest rural electrification co-op might be?

In its June issue, *RURAL LINES* told about a pioneer Minnesota co-op whose origin dated back to 1930. Readers now report other old-line co-ops of even earlier vintage. There is word too that these "frontier era" groups are still leading the rural power movement in their areas.

From the Far West, Mr. Gus Norwood, executive secretary of Northwest Public Power Association, Inc. with offices in Vancouver, Wash., wrote in to tell of 2 pioneer rural electric cooperatives in western Washington and southern Idaho. After several decades of service these co-ops are still working effectively with rural power users.

Writes Mr. Norwood: "Tacoma (Wash.) City Light, founded in 1893 was prohibited by law from serving outside the city boundaries, but was happy to sell at wholesale at the city limits or from substations along its

transmission lines to what has become known as 'Tacoma Mutuals.' Founding dates are known for the following; all of which are true cooperatives: Parkland Light and Power Company, 1914; Ohop Mutual Light Company, 1922; Lakeview Light and Power Company, 1922; Loveland Mutual Company, 1923; Peninsula Light Company, 1925 and Alder Mutual Light Company, 1927.

"A second group of electric cooperatives came into being in Cassia and Minidoka counties in southern Idaho after completion of the Minidoka Dam in 1909 by the Bureau of Reclamation. Today this 13,400 kw plant and 94 miles of transmission line serve over a dozen small cooperatives and small municipalities. * * * we learn that the Rural Electric Company at Rupert, Idaho, was founded in 1918. It has absorbed 6 smaller systems but there remain 9 small cooperatives in addition, most of which probably date back well before 1930."

Nineteen Years Ago . . .

(Editor's Note: The following material appeared in September 1935 in the first issue of an REA magazine.)

Forty-six States were represented in loan applications filed with REA on July 26, 1935.

★★★★

REA made its first official announcement of plans and terms for electrification loans on July 11, 1935. It specified that among other tests the project must be self-liquidating. "No grants will be made. Under suitable conditions loans will be made for the entire cost of building light and power lines. Loans will be for 20 years at 3 percent interest." Pointing out that only 1 farm in 10 had electric service, Administrator Cooke said, "The program of REA should make possible the most remarkable sales increases in rural power in the history of the electrical industry."

THE LINEMAN



You Can Build Goodwill With . . .

A TRAVELING METER LABORATORY

By Mitchel Pybas and Floyd Roberts, Metermen, Gibson County Electric Membership Corporation, Trenton, Tenn.

The electric meter is the main pulse beat between the consumer and the cooperative or utility. This knowledge led the Gibson County Electric Membership Corp., Trenton, Tenn., to start a program of meter testing early in its history. And ever since we have sought better ways to do the job.

Meter testing with our cooperative was first started in 1941 by Mr. T. L. Evans, who was engineer with the cooperative at that time. Those first tests were made by carrying the test equipment by car, and, setting up the test directly beneath the consumer's meter station.

After World War II a meter laboratory was set up with two metermen to test, clean, and repair all types of meters.

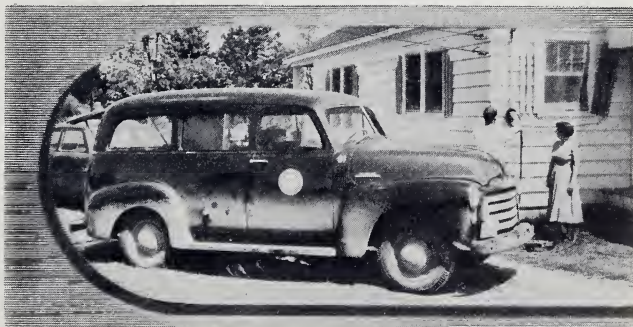
When we first started this program, the problem confronting us was a

satisfactory method for testing meters in the field.

Changing each meter for a newly tested one and bringing all old ones into the laboratory for testing and cleaning, presented a huge paperwork problem and was bad public relations as most consumers would feel sure that the old meter was bad or it would not have been removed.

Our best answer at that time was to take a pick-up truck with the test equipment in back and make the test on the consumer's premises. This proved to be the most satisfactory plan at that time, as the power user got to see the test made and his old meter replaced, but, no repairs could be made with this rig and covers had to be placed on the meters to keep the wind off the disk during testing. We found that it was costing the coopera-

One meterman explains the co-op while the other cleans, tests and repairs a member's meter.



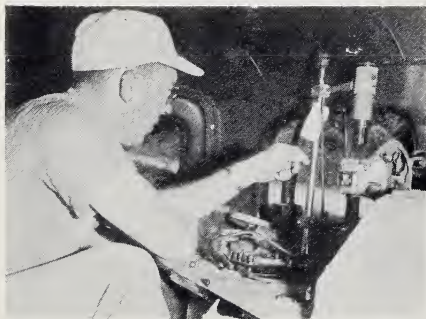
tive an average of 99 cents a meter for this type testing.

As the cooperative's size grew to over 20,000 members, scattered over some 1,750 square miles, we realized that our system was woefully inadequate and that to be successful any mobile testing system must also provide a method of cleaning and repair.

As we could find no one who had experience in building a traveling laboratory which would meet our needs, we got together with our engineer, J. C. Milton, and started making plans for one on an exploratory basis.

In April 1953, the cooperative purchased a GMC Suburban Carry-all which we felt would give plenty of height and width, and was enclosed with glass.

A 2-foot wide workbench was then built on one side of the truck with built-in locations for test block, meter standard, phantom loads, and covered containers for cleaning fluids. Drawers for tools and repair parts were built into the workbench on either side of the operator's working position. A small air compressor and tank were placed in the rear of the truck beside the 5-foot workbench. The bench and rear portion of the truck were wired with sufficient power outlets. These are supplied by a 125-foot flexible 10/3 cable that fits into the meter socket on the consumer's premises.



Meterman Mitchell Pybas, at the work bench in the "rolling laboratory," uses electronic counter in meter test.

With this traveling laboratory we are able to test up to 40 rural meters or 55 urban meters a day. We have tried using an electronic counter but find that it will not stand the vibration and dust of rural roads. We now clean, repair, and test each meter as we come to it, with an average cost of \$1.16 as compared with 99 cents for the old method of testing only.

The cooperative has less than \$200 worth of extra equipment installed in this truck to make it the valuable piece of machinery that it is. Two men can operate the equipment successfully and economically.

The "traveling laboratory" has also proved a big boon to public relations as it gives one meterman a chance to explain and talk cooperative affairs as the curious member watches the other meterman clean, test, and repair his "bill maker."

The piece of equipment has proved to be one of our cooperative's most satisfactory investments.

"Stay Alert . . . Stay Alive"

McDonough Power Cooperative, Macomb, Ill., distributed scotchlite bumper signs to members at its annual meeting this year to encourage safety consciousness. In fluorescent red on black for highest visibility, the signs read, "Stay Alert . . . Stay Alive." They are available from the National Safety Council, Chicago 11, Ill.

Hazards of Meter Reading

Accident report in the Florida Safety News: "Injured: Corbet M. Terrell, meter reader, Clay Electric Co-op, Keystone Heights, Fla. Extent of injury: left leg just above and back of ankle. Injured was reading meter when dog walked up and bit him. Time lost: none."

When's Thanksgiving?

Power Changes Turkey Farming



It would do food shoppers good to see how electric power is changing things for poultry ranchers today. And take it from those who raise prime turkeys, the changes that have come since "hen hatching" days are here to stay.

Of course, you can't tell an "electric" turkey from the old fashioned kind at Thanksgiving time. But any rancher with a freezer or incubator knows the difference in operations.

Turkey raising is a lot easier since electric power took over. Mr. Clayton Christman says it would have been slow work stepping up production of young poults and packaged turkeys without electrically-run equipment. Sure there's sweat and toil to the job but not like in granddad's time.

Mr. Christman, who has a flock of 40,000 Beltsville little white turkeys, near Woodsfield, Ohio, in the Belmont Rural Electric Cooperative area, has raised turkeys with and without power. He'll tell you he never had any idea power could do so much for a

fellow. He uses about 9,000 kwh a month now.

For several years before power lines were run to his farm, Mr. Christman had his chicks hatched off the place. Three thousand chicks were about as many as he could handle. Raising broilers and fryers for market really was a rough go.

When the Belmont co-op extended its lines to Mr. Christman's farm, he had the power to follow through on some of his pet ideas. Most of the ideas in the form of electrified equipment are now an essential part of his turkey-raising operations. Other changes will come later.

He has 3 large incubators with a total capacity of 47,000 eggs, a 6,000 capacity hatcher, and six 6,000 capacity batteries for starting poults. There is also a 50-hp motor-operated feed grinder and mixer, a dressing plant and picker run by a 17½-hp motor, and a freezer for 10,000 birds. One of his next steps is to hook up a 25-hp motor to his corn sheller.

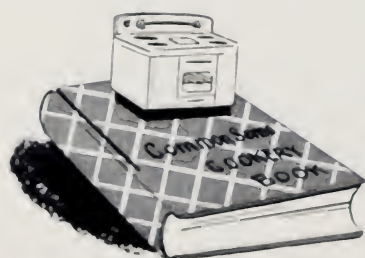
At left are some of the little Beltsville turkeys Mr. Christman raised the electric way. At right, Mr. Christman discusses merits of one of his 3 big incubators with Mr. Gene Vaughn, far right, educational adviser for the co-op.



West Central Electric Cooperative, Murdo, S. Dak., has been encouraging members to write for the newsletter how many electrical appliances they use. One member reports that her family uses 35 lights, 23 double appliance outlets and 42 different electrical appliances.

The Open House Edition of "ELECTRIC", **Winnebago Rural Electric Co-op's** newsletter, celebrates the 16th Anniversary of the association, with reflections of its progress. From 8 charter members in 1938 it has grown to a membership of more than 2100. Members steadily increased their use of power until by 1948, average kwh consumption per farm had reached 200 kwh a month. Today the average is over 475 kwh monthly. (August 1954)

Mecklenburg Electric Cooperative, Chase City, Va., Jack Smith, Manager, has just published a booklet, "Common Sense Cookery." The sections on care and use of electric ranges, the recipes, and the home economics services offered members were prepared by Mrs. Mary Scott, home economist. In addition, the booklet offers interesting facts about the cooperative for its members, tells how the agricultural engineer can help them, and also offers helps on installation of essential farm wiring, lighting, plumbing equipment. If you would



like to get a copy and further information on response to this publication, why not write Jack Smith.

Inland Power and Light Cooperative of Spokane, Wash., recently featured a farm shop issue in their newsletter. The issue gave farmers basic information on how to equip a shop, summarized advantages and gave names of publications members could obtain for themselves. One of the pictures illustrating the issue showed a tractor-operated buck rake which a member had made in his farm shop.

POWER EXCHANGE



A "Wire-Rama" was staged in October by the **Minnesota Valley Electric Cooperative**, Jordon, Minn., Herb Schimelfenig, manager, on the Elmer Busch farm. A "wire-rama" is defined as an event featuring the complete re-wiring of a farm in one day's time.

Texas Brags

The annual report of the Texas Agricultural Extension Service says, "The installation of electric service in Texas farm and ranch homes has been the greatest stimulus for improvement in rural housing in the past ten years."

President Raymond G. Roberts of the **Macon Electric Cooperative**, Macon, Mo., speaking at the annual meeting said: "Since the rural electrification program is still young it is difficult to appraise the full impact of the use of electricity on our farms, but the prosperity of our communities is a vivid indication of the effects of electrification on the rural economy."

There's a little bit of **Dairyland Power Cooperative** over in Thailand. Aj Ajroonlucksana, who worked in Dairyland's engineering department for 5 years, is now back in his

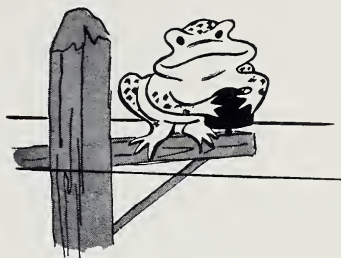
R USE ANGE



native land and supervising the construction of 69 kv transmission lines for his government. Pictures of the newly built lines show them to be a near replica of Dairyland construction.

Cuming County Rural Public Power District, West Point, Neb., in its newsletter, "Electric Consumer," shows that 1,014 consumers used between 100 and 500 kwh, 682 used from 500 to 1,013 kwh, and 100 used more than 1,013 kwh during July. The latter include some commercial consumers, but the monthly average for July for farm

consumers was 451.5 kwh. The newsletter makes a practice of listing the names of its 100 highest power users under the title, "100 Club."



ATTENTION MARK TWAIN

The famed jumping frogs of Calaveras County so widely publicized by the late Mark Twain apparently have found rivals in Kansas. **N.C.K. Electric Cooperative** at Belleville, Kansas, reports as follows: "Members in the Miltonvale area were out of service for 4 hours Wednesday morning as a result of a frog being on the line. Linemen had difficulty seeing it since it was hanging just against an insulator and was causing a short from the line down to the pole. The linemen have several theories as to how the frog got up there but none of them have been proved yet."

Ray Villyard, manager, **San Luis Valley Rural Electric Cooperative**, Monte Vista, Colorado, "There is still a lot that research can do in the development of new and improved uses of electricity on the farm. For example, in our system area farmers grow a large amount of red potatoes. The spuds are kept in storage cellars to be marketed at the right time. Present lights cause these red potatoes to turn green and make them unmarketable. Our members could save a lot of money if someone could develop a light which would overcome this difficulty."

ILLINOIS CONTRACTORS SET UP ELECTRICAL SERVICE CENTER

A forward-looking group of Illinois electrical contractors with an eye for business and their fingers on the potentially big rural electrification market have hit on a power use plan that could be a winner. And it ties in directly with the new drive that REA and industry leaders are making in stimulating greater use of power on the farm.

This Illinois group, members of the National Electrical Contractors Association, aims to bring to farmers a new kind of service—technical and engineering assistance in working out farm electrification problems—through a Farm Electrical Service Center.

It's too early to measure the success of this first pilot center but it is plain it is off to a good start. Reaction to the Farm Electrical Service Center has been favorable in the Bloomington, Ill., area where it is headquartered in the modern new offices of Corn Belt Electric Co-op.

Advantages for Co-ops. Manager H. H. Hafer of Corn Belt says the Center offers two positive advantages for co-ops—electrical engineering assistance to consumers and load building potential. Although Corn Belt is in no particular need for stepping up its load at this time, the technical assistance phase is most attractive.

Leaders are moving ahead carefully and are laying a solid foundation for their business-building enterprise. But already the plan has won enthusiastic support from key people in the rural electrification field. And the

NECA Business Development Committee has recommended it as a way for developing the potential rural market.

Prof. E. W. Lehmann, Head, Department of Agricultural Engineering, University of Illinois, and James Potter, a member of the Business Development Committee, are credited with originating the plan. Behind the plan, too, are 2 years of research and study by a group of electrical contractors in the Illinois chapter of NECA.

Contractors Gain, too. The underlying premise of the plan is that as farmers increase their use of heavy electrical equipment their problems of proper installation and adequate wiring increase. Electrical contractors, by making themselves available to help solve these problems, can benefit from a specialty contracting business, which can be carried on in addition to their big-scale contracting work.

The Center's electrical engineering specialist, Leo Stoeber, will spend a good share of his time in the field with farmers, assisting them with electrification problems.

Mr. Stoeber sees a big potential field of service ahead for the Center. Right in the Bloomington area, for example, there is need for electrically run farm equipment to do such jobs as feed handling, crop drying, silo unloading and silage feeding, ventilating, air-conditioning, barn cleaning, and milk handling. Add to this a wide range of special electric prob-

lems, farm rewiring and water systems installation, that farmers find it difficult to handle without assistance of specialized personnel.

Center Offers Special Services.

Mr. Stoeber explained the work of the Center by using a question that had been put to him. If you have a prospect for feed handling equipment, what does the Farm Electrical Service Center do?

"We visit the farmers," Mr. Stoeber explains, "and describe our service. We tell him we are prepared to give 'key-in-the-lock' assistance. That is, to engineer the job and arrange for contractors' services. We also specify that we will inspect the installations and see that all work is done properly.

"In the case of feed handling equipment we would call for bids for various jobs. A concrete foundation may have to be laid. It may call for structure remodeling to provide new bins and storage space. The farmer will need machinery such as grinders, control panels, conveyors, motors and power distributing devices. Chances are new wiring will be needed along with some tin work. In each case the lowest bidder is selected."

Farmers Need Engineering Help.

Mr. Stoeber pointed out that another part of the Center's job is to get local dealers to stock parts for the new equipment.

"We feel," continues Mr. Stoeber, "that we have a perfectly logical and practical approach in our contacts with farm people. Many farmers need electrical engineering help in getting new equipment installed properly. In most cases busy farmers who have a hundred and one things to do on the farm aren't ready to tackle electrical equipment problems. Our job is to help him with such problems."

Mr. Stoeber's activities are concentrated in the area served by the Corn Belt Electric Co-op, but as the pro-

gram is expanded it is expected that the same engineering service will be extended to other farming sections of Illinois. And success of the pilot center in Illinois could signal establishment of the program by other state NECA chapters. That's why everyone is watching Bloomington and the progress of its pilot center.

Just Off the Press . . .

To help you survey your rural market for electrical appliances and equipment, REA has just issued REA Bulletin 140-5. It deals with such questions as why make a consumer survey, how to conduct one, where to get help, how to tabulate and analyze results.

A vigorous electric sales program on the part of your management can be tied in now with the nationwide campaign sponsored by the Inter-Industry Farm Electric Utilization Council and REA. You will want to put this booklet to work.

92.3% of Farms Electrified

About 92.3 percent of the Nation's 5,382,000 farms had electric service as of June 30, 1954. This compares with 90.8 percent the year before. Numerically this is an increase of more than 77,000 farms electrified. Some 416,000 farms were still unelectrified.

The survey is required by law to estimate the number of unelectrified farms in each State on June 30, and is a basis for allotting electrification loan funds among the States. Because of the high percentage of farm electrification, REA made a special effort this year to pinpoint farms still unelectrified.

Farmers Home Administration Offers New Loan Plan

Credit Available for Irrigation and Water Systems

Loans for farmstead water supplies and irrigation are now available to farmers throughout the country by application to the county offices of the Farmers Home Administration.

These loans will be made from funds supplied by private lenders and insured by the Government, or from funds appropriated by Congress when insured funds are not available. Loans, either direct or insured, will be made only when the applicant is unable to obtain the credit he needs at reasonable rates and terms from other sources.

Credit for farm irrigation systems and farmstead water supplies has been available in 17 Western States since 1937, but new legislation recently passed by Congress extended

the water facility loans to the entire United States.

Loan funds may be used to pay the cash costs for materials, equipment and services directly related to water development. This will include well drilling, and the purchase of pumps and other irrigation equipment.

The loans will be scheduled for repayment within the shortest period consistent with the ability of the borrower to repay. No loan will be scheduled for repayment over a period which exceeds the useful life of the improvement or the security, whichever is less. In no case will the repayment period on loans to individuals exceed 20 years. Farmers Home will process and collect the payments on both insured and direct loans.

Accurate Reports on Trouble

How one manager asks members to identify locations.

Damon Williams, manager, Norris Electric Cooperative, Newton, Ill., in the co-op newsletter voices a complaint common to many managers. He says: "There is sometimes much delay in getting a service back on because the lineman does not have the exact location. We have had a few cases of trouble that could not be found until reported the second time.

"Most of these, however, will occur when the lady at a telephone switchboard or other person calls in for the one who is out of service.

"In order to find the right place quickly our lineman should have the name and account number as it appears on your meter reading cards.

As an example, we have 68 consumers on our lines whose last name is Wilson.

"This does not include the names of William, Williamson, Willison and other similar names. Of the long list of Wilsons receiving service, we have W. A., W. E., Wm. H., and Wm. Now if someone should call in and report that Bill Wilson is out of service we could not possibly know which direction to send the lineman, unless we have the right location.

"It will help us and it will help you if you will give the correct name and account number, as they appear on your meter reading card, when you report that you are out of service."

You'll Want to Read These . . .

New Publications

"Lessons in Farm Electrification" is the title of a bulletin by E. F. Olver, R. N. Jones, D. R. McClay and F. Anthony of the College of Agriculture, Pennsylvania State University.

This manual has been prepared to guide teachers of vocational agriculture, farm representatives of electric power suppliers, and others in organizing and teaching classes in electrification to farm people. Eight basic lessons are used to present subject matter such as: principles involved in the construction of 2- and 3-wire polarized circuits; how electricity is measured; importance of adequate wire size for farm and home; selection, operation and care of electric motors; heating with electricity; electric lighting on the farm; planning a wiring layout for a farm building; planning a wiring layout for a farmstead; and teaching aids.

Listed as Pennsylvania Miscellaneous Publication Number Two, it is available from the Pennsylvania State University, State College, Pennsylvania.

Illinois Rural Electrification No. 1, "Grounding Electric Stock Waterers," is a single sheet listing the rules that will get the best results for grounding electric heaters for stock waterers. A wiring diagram shows the recommended method. F. W. Andrew is the author. It was published by the College of Agriculture, University of Illinois, Urbana, Ill., in January 1954.

Pennsylvania Special Circular 12, "Farm Bulk Milk Cooling Tanks," briefly outlines the advantages and disadvantages of cooling milk in tanks

on the farm as compared with the more common method of refrigerating it in 10-gallon cans. The complete story of using a bulk milk cooler is shown in a series of 32 pictures. Written by Ivan E. Parkin and Michael R. Lynch, the bulletin runs 20 pages, and is available from the College of Agriculture, Pennsylvania State University, State College, Pa.

Idaho Farm Electrification Leaflet 26, "Electricity on the Farm for Utility and Safety," explains the causes of poor service to an appliance. This may be due to the circuit being too long, the wires too small, the voltage too low, the fuse too large, too many appliances on the circuit, a loose connection or a broken cord. Grounding promotes safety both from shock and fire hazards. Published in June 1954, it was written by J. W. Martin and William H. Knight, and is available from the College of Agriculture, University of Idaho, Moscow, Idaho.

Do you need a milk cooler? Vermont Brieflet 934, "Bulk Milk Cooling," gives consideration to the advantages of and problems relating to bulk milk handling. Bulk milk cooling may be convenient, but, can you afford it? Before buying this type of equipment, the bulletin recommends determining what size tank is needed, the method of refrigeration, how to cool the condenser, and the milk house requirements. Earl L. Arnold, E. C. Schneider, Alec Bradfield and R. O. Sinclair are the authors. The bulletin was published by the College of Agriculture, University of Vermont, Burlington, Vt.

Borrower Tests New Wire

Experiment Could Reduce Rural Telephone Costs

A major innovation in rural telephone line construction is being tried out by the Dickey Rural Telephone Mutual Aid Corp., Ellendale, N. Dak.

Twenty miles of test line will be built with one wire of each pair of telephone wires insulated. Then if the wires come in contact with each other, no current can pass from one to the other to disturb the circuit. It is expected that this will reduce operating difficulties and lower construction and maintenance costs on rural telephone systems.

On dial telephone systems using conventional construction with bare wires, if momentary contacts occur during high winds or from too much sag in the wire, service may be interrupted, and misdialing and excessive wear on central office equipment may result. This seriously affects operations in the use of today's long spans.

In the field test at Ellendale, no other changes in construction are involved. However, this innovation is regarded as one step in the development of an entirely new design for rural line construction.

Other Changes to be Tested Later. In later tests, with all wires insulated, plans are being made to string the wire only 4 inches apart instead of the customary 12 inches. This will permit the use of shorter, less costly crossarms on the pole. It will also eliminate the need for pins and insulators in mounting the wires on

the crossarms. The use of an inexpensive armor rod and fitting for mounting, if found satisfactory, could replace pins and insulators. Noise and crosstalk would be less of a problem and the service life of the wires would be increased by the protective covering of insulation.

Although the insulated wire costs more than bare wire, the new design is expected to cut construction costs in rural areas where economy is essential, and also reduce maintenance costs.

Advantages Cited. The advantages of a construction design which eliminates insulators become obvious when you consider that there are some 40 insulators per mile of single-circuit 2-wire line. When a glass or porcelain insulator becomes cracked or broken by storms, by rifle fire or sling shots, service is impaired until the insulator is replaced.

The insulated wire for the North Dakota trial is just ordinary line wire with a thin coating of polyethylene and is being produced on special order. The increase in cost over bare wire is expected by telephone engineers to be very small. The Dickey corporation is making this test as a small part of an extensive system rehabilitation program financed with REA loan funds. Already two other North Dakota telephone borrowers have requested permission to use this type of wire in their own construction.

Watch Those Stakes

*You can enlist subscribers'
help in protecting markers.*

Kenneth A. Knudson, manager of the Dakota Cooperative Telephone Co., Irene, South Dakota, has some advice for members in his newsletter.

He says: "We would like to stress to our subscribers the need for caution while working around the stakes for our new telephone lines.

"To give you an idea of *what* and *why* the stakes are so *essential*—we will try and give you some information that appears on the stakes. First, the staking crew measures the exact distance between these poles with meters on the speedometer cable, at which time the stake is placed in the fence or along the fence line with a number on it. This is the pole number for this line group. This number is transferred to the staking sheets and the engineer determines what height of pole should be placed there, pole top assembly, such as brackets,

crossarms, anchors and guy wire, and span length. When the crews are hauling poles, they must have the stake to place the right height and class of pole to be set by the digger.

"Next comes the framing crew who put on the hardware and pole top assemblies; they also use this pole number to get the right units on the pole. Along side of this pole there is a little stake driven near the ground level—this is called the 'hub stake' which is lined by the surveyors on the 34-foot line. This will be 6 inches back of any authorized construction work, therefore, not causing extra expense or damage to our new pole line.

"If for any reason these stakes are moved out-of-line, or destroyed, it will be necessary for the cooperative to have these stakes replaced causing additional expense toward the construction of the new dial system."

Telephone Cutovers During August

The following rural telephone exchanges were cutover to modern dial service by REA borrowers during the month of August:

The Pineland Telephone Cooperative, Swainsboro, Ga., cutover its Metter exchange; Farmers Telephone Cooperative, Kingstree, S. C., cutover its Pine-wood exchange; Taylor Telephone Cooperative, Merkel, Texas, cutover its Hamby exchange; and the Chequamegon Telephone Cooperative, Cable, Wis., cutover its Barnes exchange.

Telephone Terms

A "Glossary of Telephone Words and Terms," by Emerson C. Smith, may be purchased from the Telephony Publishing Corp., 608 South Dearborn Street, Chicago 5, Ill., for 50 cents a single copy.

Director's Job

Rural telephone co-op directors are tackling a man-sized job today. And new as many boards of directors are to the task of piloting the affairs of a highly complex and vital business organization, they can be hailed for a job well done.

Some say being a good director comes naturally. Others point to the sizable number of co-op directors who simply learned, the hard way, the knack of carrying out responsibilities. One thing sure, most directors seem to take to the job like a duck to water. They like it.

Most directors agree that it helps a lot to know one's job. Not a master set of duties, because a director's work can't be cut out pattern-like, but some practical guide-lines to help him perform his duties.

Directors Are Stewards. There's a feeling among telephone directors that as board members carry out their responsibilities so goes the co-op. To put it another way, when directors are good stewards, things get done, the co-op runs along smoothly, loans to REA are paid back and telephone users are happy.

Ask the directors of some of the older cooperatives about their duties and they'll tell you—each from his own experience.

What then can newcomers to co-op boards be told to help them do the tough job they've been given?

REA Bulletin 401-2, "Responsibilities of a Telephone Co-op Director," offers some pointers.

But first of all let's put the director's job in the right setting.

Work as a Team. Directors are part of the co-op team with a legal responsibility to see that co-op operations are managed in the best interests of members. Directors are subject only to control by members and to limitations imposed by state laws, articles of incorporation and the co-op bylaws. Boards also comply with provisions of their loan and mortgage contract. Each director shoulders his share of the job and works in harmony with his fellow directors.

At board meetings directors need the wisdom of Solomon and the will to back up their convictions. Yet they look at problems objectively, vote open-mindedly according to their best judgment.

The director's job is quite different from that of another key figure in the co-op organization—the manager.

What Is Director's Job? A director's job is one of policy-making, of planning and charting the co-op's course of action. The manager carries out such policies and plans.

Rural telephone co-op directors have many major and diversified duties. An important one is to learn all about the loan application, and later when it is approved, the terms on which the loan is based. A good working knowledge of the loan contract is essential when the matter comes up at board meetings and decisions have to be made.

It's part of a director's job, too, to see that proper records are kept of income and outgo, of material inventories, of subscriber accounts, and of business meetings. About business

meetings, some directors are sticklers for requiring that minutes be prepared in detail and promptly.

Here are some of the things that have become part and parcel of the director's job:

1. Hiring a competent co-op manager, and making sure that he does his job.
2. Working out policies to help guide the manager and his staff, and seeing that they are carried out.
3. Shaping plans for co-op development.
4. Employing professional consultants such as an attorney, engineer and accountant.
5. Passing on membership applications and termination of memberships.
6. Making sure that adequate funds, in the form of equity capital and REA loans, are available for development work.
7. Setting up budgets and authorizing and checking expenditures to determine that funds are being put to good use.
8. Making sure that bylaws adopted

will promote effective control by the membership and provide for nonprofit operation in accordance with co-op principles.

9. Letting contracts and seeing to it that they are carried out satisfactorily.
10. Keeping members informed on their rights and responsibilities as owners of the co-op, of problems and progress, and the role telephone users can play in getting better co-op service.
11. Planning and conducting co-op meetings.
12. Working to build good community relations for the co-op.

Responsibility to Members. Of course carrying out all these responsibilities is going to take a lot of time. And when you figure in meetings, committee work and the digging directors have to do to keep on top of things, it's no wonder they're numbered among the country's busiest unpaid leaders.

Directors aren't forgetting that the co-op is owned by its members, and that they look to the board to keep things in top working order.

Tip for Telephone Borrowers

The Dakota Cooperative Telephone Co., Irene, S. Dak., asks each subscriber to put his telephone number in the corner of his check. This will assure credit to the proper account. Kenneth A. Knudson, manager, says so many subscribers have the same last name; this little device speeds up the bookkeeping work, as well as cutting down on possibility of error.

REA TELEPHONE BORROWERS

(AUGUST 1, 1954)



LOANS APPROVED AUGUST 21 THROUGH SEPTEMBER 23, 1954

ELECTRIFICATION

		450,000	Magnolia Electric Power Assoc., McComb, Miss.
\$ 965,000	Yampa Valley Electric Association, Steamboat Springs, Colo.		
		435,000	Highline Electric Association, Holyoke, Colo.
750,000	Indian Electric Cooperative, Cleveland, Okla.		
		250,000	Chickasaw Electric Cooperative, Somerville, Tenn.
50,000	Mitchell County Electric Membership Corp., Camilla, Ga.		
		1,060,000	People's Cooperative Power Assoc., Rochester, Minn.
597,430	Inland Power and Light Co., Spokane, Wash.		
		645,000	Sumter Electric Cooperative, Sumterville, Fla.
125,000	Nespelem Valley Electric Co-op., Nespelem, Wash.		
		720,000	Colquitt County Rural Electric Co., Moultrie, Ga.
1,060,000	North Arkansas Electric Co-op., Salem, Ark.		
110,000	Hardin County Rural Electric Co-op., Iowa Falls, Iowa		
170,000	Rusk County Electric Co-op., Henderson, Texas		
518,000	Eastern Illinois Power Co-op., Paxton, Ill.		
90,000	Shelby County Rural Electric Membership Corp., Shelbyville, Ind.		
278,000	LaGrange County Rural Electric Membership Corp., LaGrange, Ind.		
7,278,000	Corn Belt Power Cooperative, Humbolt, Iowa		
130,000	Poudre Valley Rural Electric Assoc., Ft. Collins, Colo.		

TELEPHONE

\$102,000	Baltic Telephone Co., Baltic, S. D.
248,000	Eastex Telephone Cooperative, Henderson, Texas
318,000	Breaux Bridge Telephone Co., Breaux Bridge, La.
76,000	Guadalupe Valley Telephone Co-op., Smithsons Valley, Texas
65,000	Cream Valley Telephone Co., Hawkins, Wis.
237,000	Farmers Mutual Telephone Co., Madison, Minn.

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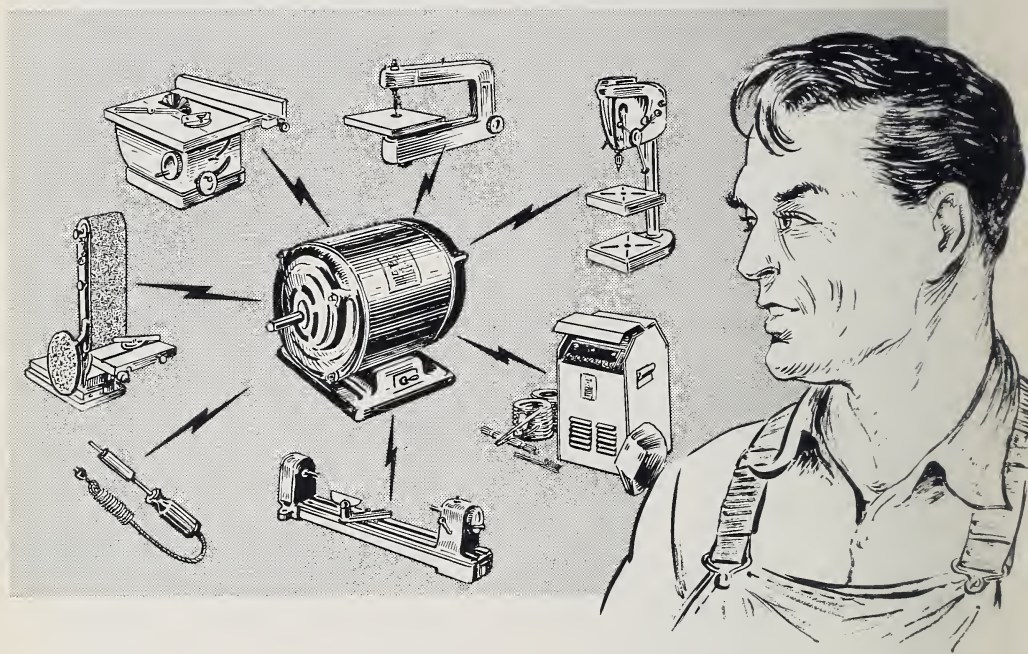
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YOUR ELECTRIC FARM SHOP



Many farmers have not yet been introduced to the advantages of power tools . . . the power saw with attachments for sanding, drilling, and planing . . . or the lathe, air compressor, battery charger, and soldering iron. Your members can save time and money, and build system load, by having an electric farm shop.